

EXCAVATIONS ON RUARANGI PA (SITE N20/41), WHANGAREI, NEW ZEALAND

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Abstract. Salvage excavations on Ruarangi Pa in 1965 are described. The pa was occupied several times and the evidence suggested a change in defence from scarps with palisades to artificially heightened scarps. Two kinds of house floor, associated with hearths and pavings of limestone slabs were found, but there were no pits in the excavated area.

An excavation of a small ridge peak pa two miles (3.2 km) south of the city boundary of Whangarei, Northland, was conducted as part of a general investigation of the Ruarangi Maori Burial Ground in 1965. Because the area has been reserved for a long time as a *waahi tapu* (sacred place), it was only at the request of the Maori Land Court and with the consent of the Maori Trustees of the Reserve that these investigations took place. The request was prompted by an application by the Portland Cement Company for quarrying rights to the limestone on the entire forty acre (16.187 hectare) Reserve. The investigations were aimed, therefore at determining and recording the extent of the prehistoric features; and where feasible salvaging some information from any major sites threatened with destruction.

Three investigations were carried out: those on the burials and traditions of the area by R. S. Oppenheim detailed in an accompanying report (this volume); those on the cave systems by L. O. Kermode and members of the Auckland Speleological Society described in the preliminary report presented to the Maori Land Court (Kermode 1965), and those on the ridge peak pa with which this report is concerned, by the author and members of the Whangarei and Auckland Archaeological Societies. The *tapu* on the Reserve was lifted by the Maori Trustees for the duration of the investigation.

The Ruarangi block lies on the foothills of the upper reaches of the Whangarei Harbour and furnished excellent views over the harbour and the surrounding alluvial flats. Kermode (1965) provided a useful description of the local geology:

The basement rock in this district is greywacke. It forms a series of northward tilted blocks up-faulted on the southern side. Within the fault angle valleys lie young marine sandstones and limestones . . . At the pa site the limestone appears to be overlain by a younger weathered sandstone which probably forms most of the scrub-covered hill just to the north.

The hills of the Reserve are very steep and high. They are partially covered in thick bush, including puriri (*Vitex lucens* Kirk) groves, with the rest in either second growth or rough sheep pasture. Cliffs and large blocks of limestone stand as weathered out-crops in which numerous caves and crevices occur. Some of them have been used as burial places; other overhangs with charcoal, ashes and bits of shell showing on the surface, have at some time served as shelters and

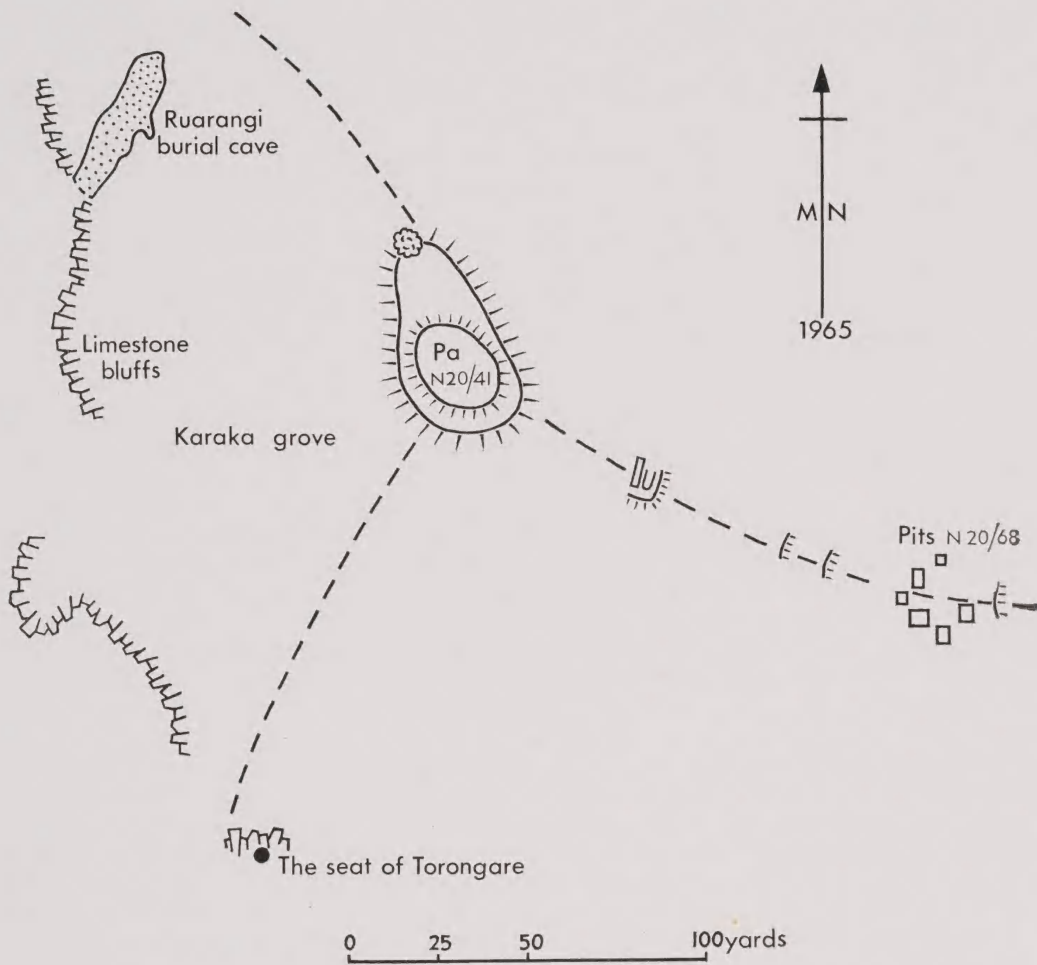


Fig. 1. Ruarangi Pa, N20/41, and adjacent features.

presumably cooking areas. Oppenheim's report describes both the traditional history and the burial system which will not be considered further here. The shelter sites did not seem sufficiently promising to warrant investigation in the time available.

The major feature of archaeological interest is the pa, situated on the peak of a ridge (Fig. 1). It consists of the *itihi*, a small flat area on the highest point; one wide encircling terrace; and several other lower terraces (Fig. 2). All the terraces terminate in high steep scarps and there are no surface indications of ditches, banks or pits directly associated with the pa. While heavy bush surrounds the site, the pa itself is covered mainly with grasses and smaller trees.

Pits, however, do occur outside the natural defences of the pa and sufficiently near it to suggest that they are in some way related (Fig. 1). They were investigated by S. Bartlett, who has provided the following description (pers. comm.):

On the shoulder of the clay ridge sloping down to the west of the pa are seven rectangular pits. The main group of six lies approximately 100 yards below the lowest eastern terrace of the pa, amid second growth, bush and scrub. The sizes vary from 6 x 4 ft to 12 x 6 ft. Of these, five lie with their longer axis across the slopes. Three pits show remains of raised banks up to two feet high on the lower side. Evidently some of the pits were drained, for in midwinter only two were holding water. An exploratory trench (using a spade) showed that the pits were originally about two and a half feet deep. No shells, *haangi* stones or midden refuse was visible in the pit area. Close below this pit group a small semi-circular levelled area is cut out of the slope. The seventh pit lies thirty yards from the pa and is 24 x 5 ft in dimension. Spoil has been heaped up on the lower side to form a bank, now a mound 4 ft wide. This mound extends across the south end of the pit and continues down and across the front parallel with the mound on the edge of the pit, forming a partial enclosure, banked on three sides. Between this pit and the others are two small terraces and low banks.

As well as exploiting the forest resources in the area, the pa inhabitants must have had access to the harbour mudflats as the shell midden testifies, and to agricultural land. Bartlett (pers. comm.) has collected local reports that 70 years ago the flats below the pa were a renowned Maori agricultural area, and Maoris returned yearly to cultivate the land.

Both personal observation and field recording have shown that in field configuration the pa, though small, is otherwise typical of many from the east coast of Northland. One of the larger of these is Parahaki (N20/101) on the high hill overlooking Whangarei. Such pa are usually situated on high steep peaks, and the terraces are extremely well defined, with scarps 6 to 8 ft high, sometimes reinforced with a stone facing. The wide terraces and very steep scarps make maximum use of the available land. Pa of this type commonly lack any form of ditch or ditch-and-bank defensive earthworks, even when, as in the case of Ruarangi itself, the topography is suitable for such features. In contrast to pa in other areas, pits are seldom if ever encountered on the terraces but, as in the case of Parahaki, can occur in large numbers on ridges leading up to the terraces. I have never encountered *rua* (underground pits) on any sites of this type, although there is a hint of some in a report on a pa near Kaeo, commonly known as Kaeo Mountain. This suggests that many years ago small "caves" existed in the scarps.

THE EXCAVATION

In total area Ruarangi pa covers approximately 1,660 m², of which perhaps 1,500 m² is level ground suitable for habitation. The main base line (Fig. 2), was laid out so that it bisected the three largest flat areas on the site, the resulting bearing being 164° east of magnetic north. An extension at a slight angle to the main baseline (Fig. 2) was made so as to bisect the outer scarp at the point of the main line of approach along the ridge. Although the area excavated covered only about 90 m² in all, which would be approximately 5.7% of the habitable space, it must still give a reasonable indication of the main activities and structures on the site, as each of the major areas was investigated. The three areas in which excavations took place were designated as:

Area A: the *tihī*

Area B: The wide terrace just below the *tihī*, and separated from it only by a low scarp

Area C: the largest area of level ground on the site, consisting of a wide terrace below Area B and separated from it by a high steep scarp.

Later extensions included excavations designed to investigate a mound on the surface of the *tih*i and a trench to investigate access to the pa from the ridge to the north of the site, just below the lower scarp. A 3 m grid was employed throughout, but the lay-out of the individual squares was largely determined by the presence of trees and their root systems which had to be avoided.

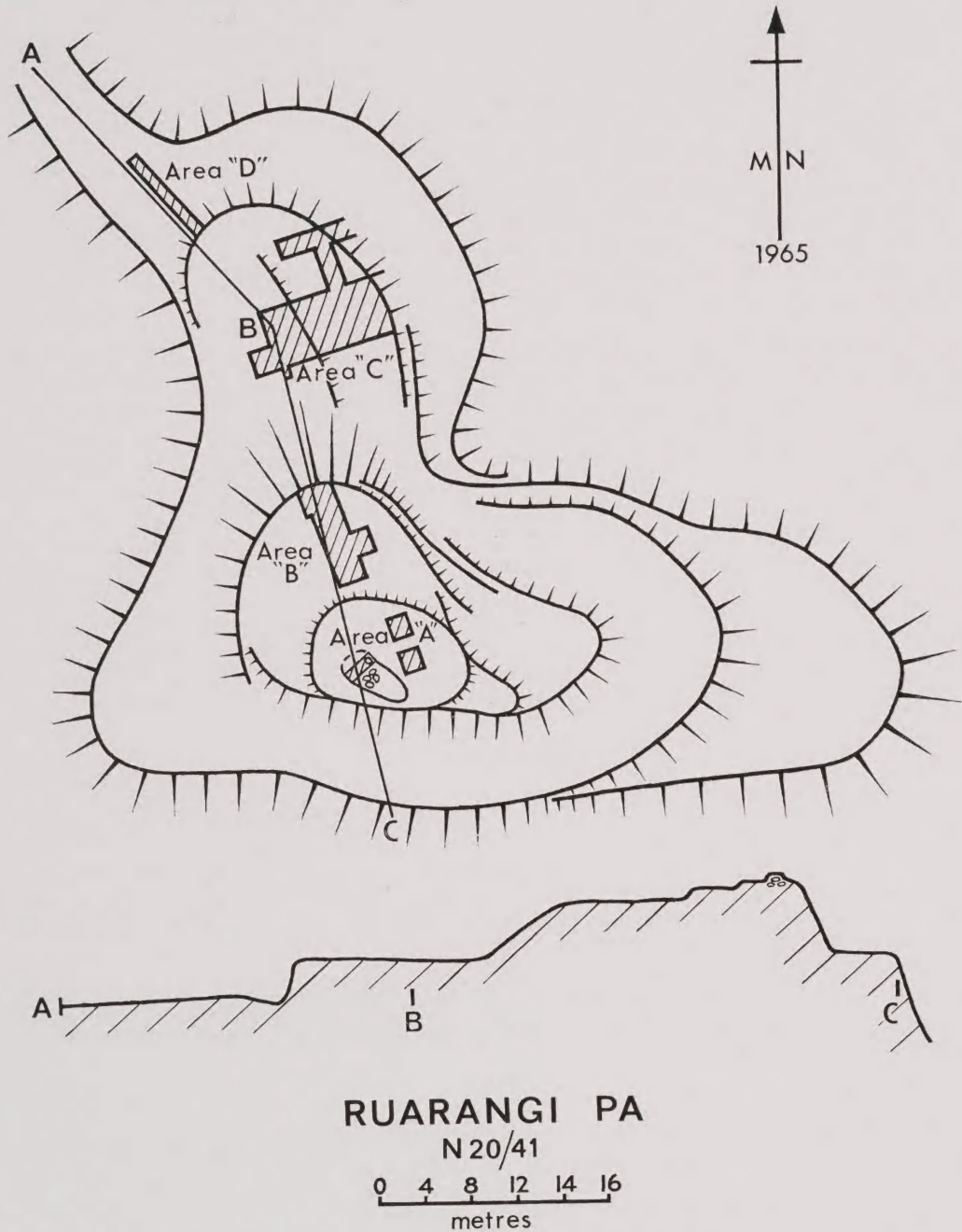


Fig. 2. Plan of Ruarangi Pa showing excavated areas.

No direct stratigraphic links were established between any of the areas, so each is best discussed individually. Possible correlations between the local sequences will then be dealt with in a separate section. In each area strata are initially discussed in the order of their discovery, with the upper-most deposit designated layer 1. Interpretations of the stratigraphic sequence, grouped into occupations, are numbered from earliest to latest. The term "occupation" is taken to mean a series of layers which appear to relate to one phase of living on the site. In this grouping no assumption is made that successive occupations must be separated by any great gap in time, nor is it assumed that they necessarily represent settlement by different groups of people.

Area A: The Tihi

Two 2 m squares, M 24 and 25, and a section through a low mound were excavated on the *tihi*, revealing that deposits there were shallow, the stratigraphy simple, and structural features few in number. This situation provides a sharp contrast to that encountered in Areas B and C discussed below.

Stratigraphy

Removal of the turf zone, *layer 1*, revealed a black soil deposit, *layer 2*, of fairly uniform thickness over the entire area (Fig. 3). Both layers yielded flakes of chert and obsidian, with the highest concentration to the side of the fire in square M-24. *Layer 3* was a brown soil zone containing lumps of clay and sandstone, and was formed on a hard clay-sandstone base rock which in places had also weathered to a lumpy clay.

Features

A circular depression 11 cm deep and approximately 1 m in width was encountered in the centre of square M 24 (Fig. 3—a). It was cut into layer 3 and contained burn marks and ash. A chert flake concentration lay to one side of the fire area. There were no associated oven stones, but there was a scatter of ash off to one side, apparently rake-out from some type of firepit. Square M 25 revealed only one stake hole (Fig. 3—b), cut either from the top of layer 2, or from nearer the surface. Some slight irregularities on the southern side of this square were probably related to the weathered top of a low scarp which showed on the surface in this area.

A bisecting trench was cut through a low long mound to the west of the two squares (Fig. 2). The northern end of the mound was covered with limestone slabs, but it was found that they lay loosely piled on top of the mound and did not penetrate the surface of layer 2. A few pieces of limestone lying just under the turf in the flat area beside the mound showed indications of burning. The mound itself was entirely composed of undisturbed sandstone and clay in which occurred the natural obliquely dipping strata typical of the area. The mound, therefore is to be interpreted as a natural remnant on which little soil had formed, and with no sign of the weathered and lumpy clay deposits of layer 3 encountered elsewhere.

The lack of features on the *tihi* is surprising. Either it was deliberately kept clear, or it was levelled at a relatively late stage in the occupation sequence of the pa. The area was certainly flattened at one stage, and the occupation on its top can with some confidence be related to the final occupation in the other areas.

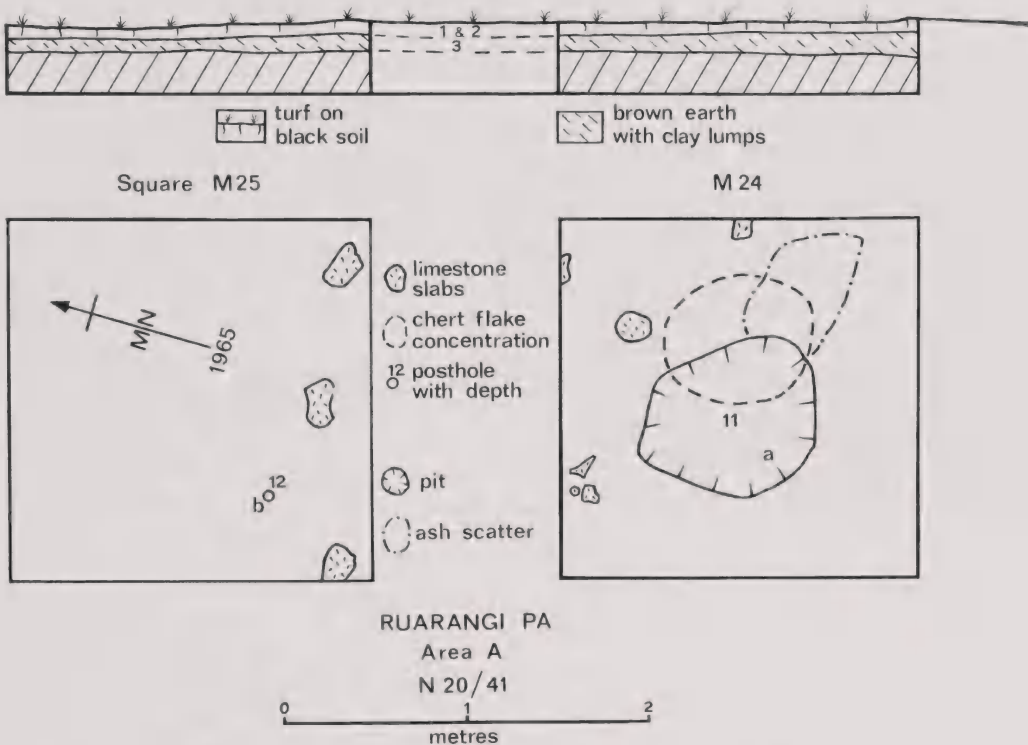


Fig. 3. Plan and cross-section, Area A, Ruarangi Pa.

Area B

The small terrace flat to the north of the *tahi* is separated from it by only a low scarp. The three and a half squares excavated in Area B were intended to provide a cross-section across the terrace from Area A and the low scarp to the higher steeper scarp which led to Area C below. It was also hoped to uncover structural features indicative of the use to which the terrace had been put.

Stratigraphy (Fig. 5)

Occupation IV was represented by the turf zone, *layer 1*, which had formed on *layer 2*, a black soil with a great deal of humus. *Layer 2* contained numerous flakes of chert and some obsidian.

Occupation III comprised layers 3, 4 and 5.

The composition of *layer 3* was predominantly broken shell, with some large, whole pipi (*Amphidesma* sp.) both on top of and underneath the more fragmented shell. This layer was not continuous across the terrace, but was bounded on the two ends by the rising clay fills of the underlying terrace scarps. A few scattered limestone slabs were found in the layer but they did not appear to follow any deliberate arrangement. Incorporated in the layer as features were a number of ovens and one collection of oven stones, along with many more scattered oven stones. Several artifacts were also found in the layer. They include two broken adzes lying within a few centimetres of each other in the northeast

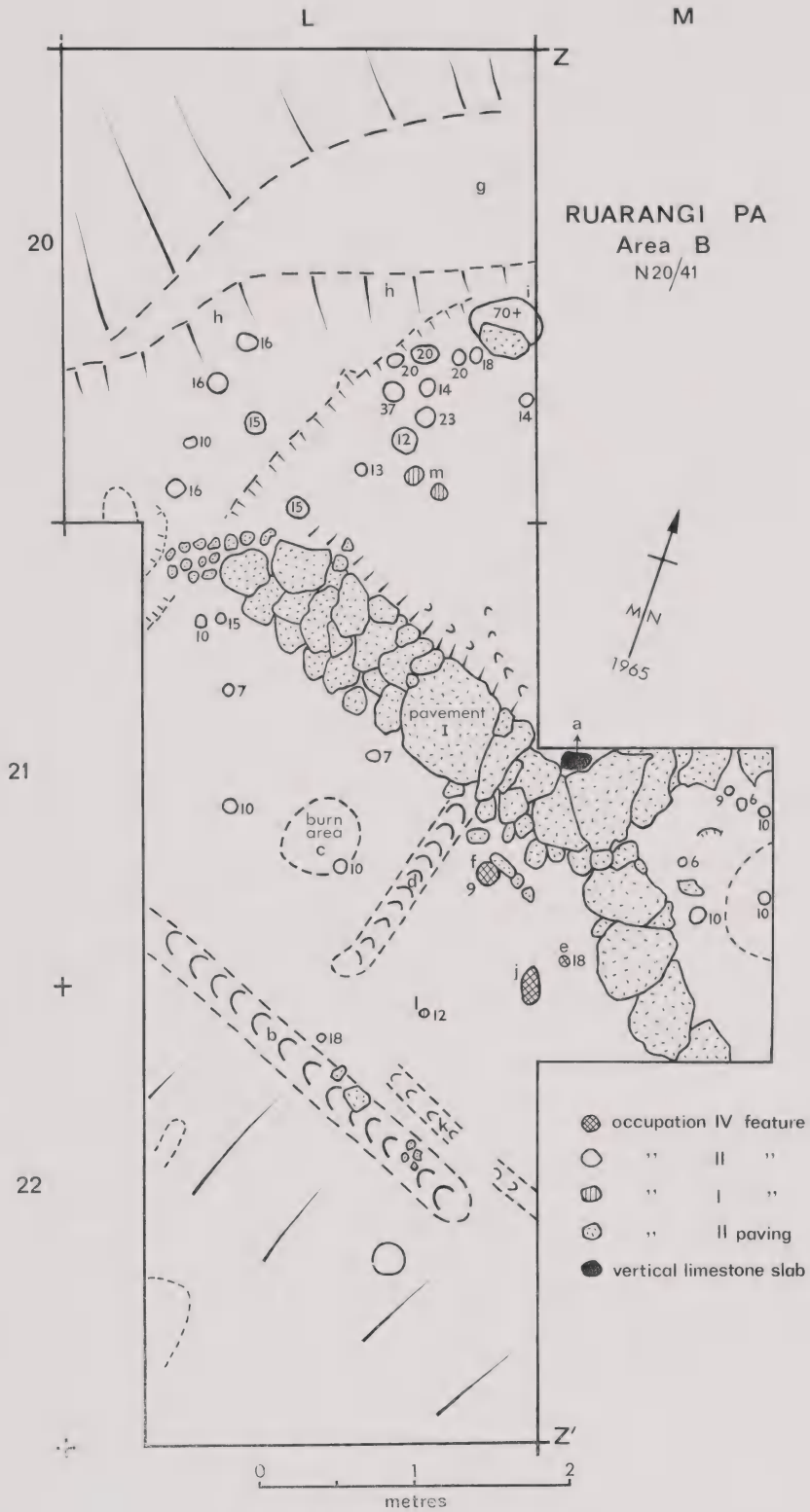


Fig. 4. Plan of Area B, Ruarangi Pa.

portion of square L 21. A flake from another adze was found here and this fitted with a flake from the same layer found in square L 20. One further adze, of Duff type 2B, was found in the spoil heap among the distinctive spoil from this layer, and therefore can probably be associated with it. A single upright limestone slab (Fig. 4—a), on the north edge of pavement I in square M 21 appeared to have been set from this layer. It protruded 7 cm above the turf surface.

Layer 4 was a mixture of ash and earth with oven stones and small pieces of shell. This layer was thickest to the northwest in the area of squares L 20 and 21. To the south it butted up against and in part overlay the limestone paving of layer 7. The preponderance of oven stones in layer 3, however, is demonstrated by comparison with layer 4. Used oven stones and burnt pieces of limestone occurred by weight in a ratio of 12 kilos in layer 3 for every 1 in layer 4.

Layer 5 was a discontinuous thin band of shell midden that became thicker toward the eastern side of the excavated area. It overlay the limestone pavement of layer 7 and the clay floor of layer 6, in places abutting against the sloping natural clay-sandstone base of the southern scarp.

Occupation II included the remaining layers, 6, 7, 8 and 9.

Layer 6 was an almost pure clay deposit, 1 - 2 cm thick, which appeared to form an artificially built-up floor. A shallow drain, 4 cm deep (Fig. 4—d) ran across this floor and disappeared under the limestone paving. Another drain (Fig. 4—b) at right angles to it, was cut into the southern scarp. After an initial filling of clay from higher up the slope (presumably formed by erosion during rainstorms) this drain was later filled with the shell material that covered the clay floor. An area with a burn mark was encountered on the surface of this floor in square L 21 (Fig. 4—c).

Layer 7 consisted of the limestone slabs which formed pavement I (Figs. 4, 6). This pavement partially underlay layer 6 and was formed of overlapping limestone slabs up to 1 m in diameter. While such slabs occur locally, they do not occur naturally in the clay and sandstone remnant on which the pa is situated, and thus must have been brought to the pa. This paving marked the boundary between the thick deposit of midden and ash belonging to layer 4 on the one side, and the clay floor of layer 6 on the other. At the northwest end the pavement narrowed and turned to the west, running down the slope and covering a shallow drain.

Layer 8 was a thin deposit of shell midden underlying the clay floor of layer 6 and continuing beyond it to the north down the slope. On the eastern side of square L 21 it had been cut away in places.

Layer 9 was another clay fill (unfortunately incompletely excavated) which appeared to form an earlier floor beneath pavement I. It continued down the slope to the north and, becoming abruptly thicker, formed a low irregular mound (Fig. 4—h) at the base of what proved to be a built-up bank of clay and sandstone boulders and rocks (Fig. 4—g). This bank had served as a retaining wall against which the later deposits had terminated (Fig. 5). The confused stratigraphy in the small area excavated could have been caused by tree roots but also possibly by the former existence of posts which later rotted. The two metre length of the bank which was uncovered did not entirely follow the line of the clay mound on which it lay.

Layer 10 was the underlying clay-sandstone bedrock. In square L 20 there was a black lens on its surface, probably the remains of the original soil on the site before human modification. Higher up the slope to the south this dark soil disappeared, and layer 9 lay directly on the natural clay.

Features

Few structural features can be assigned to Occupation IV. There were a number of depressions cut into layer 3 and filled with dark humus, which are of unknown function (Fig. 4—j). A stake hole (Fig. 4—e) in the southern portion of square M 21, cut into layer 3, contained the remains of a stake. A larger posthole (Fig. 4—f) on the east side of L 21 was filled with black earth and shell.

Occupation III was largely concerned with cooking. A number of ovens were concentrated in the northern part of the area excavated. All were about 60-70 cm in diameter, with their stones *in situ*. A large cluster of oven stones associated with this occupation was found lying on the clay bank, as if carefully put aside for a later occasion. Stakeholes which possibly belong to this period or later appeared to be cut from part way through layer 3, but were difficult to find until the lower and less disturbed layers were reached.

Occupation II consisted of the clay floors and their associated features. The earlier (layer 9) and later (layer 6) clay floors were separated by a thin layer of shell (layer 8), while the later floor lay partially over a broad lineal paving (pavement I). A number of postholes or stakeholes appeared to have been cut from the later floor (Fig. 4, square L 21; Fig. 7), although some of them were so shallow that they could well have been cut from a layer above and not identified at that stage. A 15 cm deep drain ran along the southern scarp (Fig. 4—b). This was cut part way up the low scarp, rather than at its base, and debris from the earlier occupations had already accumulated to this level when the later clay floor was laid. The drain began just below a deep posthole on the scarp, which was filled with the same material as the drain (Fig. 4). The drain itself ran to the northwest and was filled with a deposit which may have been part of layer 4, as the upper levels contained oven stones and pieces of limestone (Fig. 4 b). Another shallow drain (Fig. 4—d) at right angles to it, as mentioned above, ran across the floor to the northeast, disappearing under the paving (Fig. 7). Burn marks on the clay floor in the central area of square L 21 (Fig. 4—c), between the deep drain and lineal paving, indicate the position of a small fire, although there were no signs of a formal fireplace. The features in the central portion of Area B, then, including the clay floor, the drains, the limestone paving along the other floor edge, and scattered postholes, all suggest that this part of the terrace functioned as a residential area.

Similar evidence for the lower and earlier clay floor is not so extensive. Only one stake hole (Fig. 4—l) and no burn marks or fireplaces could be identified in the excavated area. There was a shallow drain (Fig. 4—k), however, which ran along the base of the low scarp and parallel to the later drain, although it was not as well defined. It belongs to the earlier clay floor.

Because of the state of preservation of the later clay floor the underlying sequence was discovered from limited test pit excavation and could well have been more complex than indicated here.



Fig. 6. Lineal pavement I, Area B, Ruarangi Pa, from the southeast.

To the northwest the lineal limestone paving (layer 7) became narrower and less well formed; smaller stones were used. Also, the sharp scarp on its northern side was replaced by a gentle slope. Here the paving turned to the west, covering a shallow drain-like depression which then ran off down the slope. The gently sloping clay fill (layer 9) in this area to the north of pavement I contained many postholes, all of similar depths, and all with fills of shell and loose clay towards their base (Fig. 4, square L 20). The main concentration of these postholes is around a deeper posthole (Fig. 4—i), too deep for its bottom to be reached. The clay edge formed by layer 9 thickened to the northeast, forming a bank which added considerably to the height of the steep scarp which led to Area C below. Later the height of the bank had been further increased by the use of clay and sandstone boulders to form a wall, as noted above, the remains of which showed slightly on the surface. No postholes were encountered on or in the portion of the wall surface



Fig. 7. Square L-21, Area B, Ruarangi Pa, showing part of pavement I, and the upper of two clay floors with associated postholes and drain.

excavated, and it appears that all wooden structures lay behind it to the south and not along the scarp edge.

Occupation I. A little evidence for an earlier use of Area B was recovered. In square L 20 two postholes (Fig. 4—m) sealed by layer 9 were identified which were cut from the top of the natural bedrock surface, and a stake hole was also found in L 22 (Fig. 4—l).

Discussion of Area B

Traces of the initial utilisation of the area were meagre. One could possibly deduce that as the two postholes were cut on the slope of the hill, they related to defensive features rather than domestic structures. But it would appear that most

evidence of utilisation of the flatter area behind was removed, along with the original soil zone, when the area was prepared for Occupation II.

Occupation II comprised the major building activities which shaped the later use of the site. These included levelling the central portion of the area, by cutting a low scarp with ditch on the side adjacent to the *tihī*, and the building up of a clay bank along the steeper natural scarp next to Area C. Wooden defensive structures then appear to have been erected behind this bank, the most likely being a wooden palisade, although some sort of small fighting stage is not entirely ruled out. The addition of a boulder wall to the top of the bank must have rendered the wooden defences virtually useless, which suggests either that the postholes belong to something else, or that the palisading was later replaced by the stone walling with no supplementary wooden defences built on the wall. Unfortunately, as the question of preservation of the site had not been decided at the time of excavation, it was deemed unwise to remove the boulder wall to determine whether or not palisade postholes had been cut into the top of the clay bank. One could also suppose that later erosion has taken so much of this wall that the postholes have disappeared, or that better defences on the lower terrace put these higher defences out of use.

As mentioned earlier, this site, on the basis of field surveys, is typical of many in the Whangarei area. Thus it is interesting to speculate whether high steep scarps with stone banks may also be a feature of such sites and whether in this area wooden palisades as a defensive device were replaced by these earthworks. Vayda (1960, p.8) in a study of Maori warfare based on historical documents reports that projectile weapons were uncommon among the Maori. If such was the case, then one can well imagine that height could be more strategically advantageous than a palisade in defence. One could also imagine that the heavy soils and the high rainfall of Northland would tend to make the upkeep of wooden stockades a much more arduous task than in regions with dryer climates and lighter soils — thus favouring artificial earthwork defences over palisades, at least on those sites where the technique of a surrounding ditch and bank was not employed. All this is not to suggest that palisades or fighting platforms were not in use in Northland in the late prehistoric period for they almost certainly were on some types of sites (Kennedy 1969). Also, palisading is well attested in the early historic period (Maning 1863, pp. 40-41) by which time guns were also in use. But palisading need not have been universal on all types of terraced pa, so that there may be some meaningful differences between sites using palisades as supplementary defences and those using high artificial banks without palisades. Only future research, however, can decide this issue.

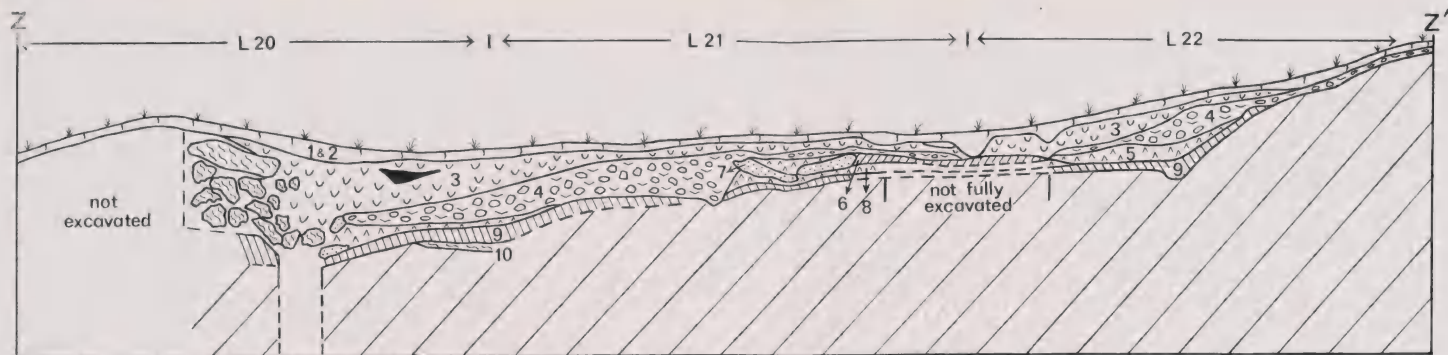
The problem of identifying archaeologically the houses or huts used for residences by the prehistoric Maori has been widely discussed (e.g. Groube 1965). Excavations at Paeroa village (Groube 1966), Ngaroto (Shawcross 1968) and Motutapu (Leahy 1970, pp. 62-63) have demonstrated the existence of floors and lines of stakeholes sufficiently distinctive to be interpreted as house or hut sites. These identifications receive further support from the excavations on this site. Here the inhabitants constructed well-drained clay floors, often (from personal experience) the only place not waterlogged on the site, built small fires on them, and put "housewifely" limestone paving along the sides of residences, which perhaps also served as relatively dry and mud free areas for outdoor activities and as paths for movement around the site. Thus the evidence suggests that the finding

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|--|-----------------------------------|--|-----------------------------|
| | turf on black humus stained soil. | | bands of shell midden. |
| | broken & fragmented shell midden. | | clay-floors. |
| | ash of oven and oven stones. | | black humus clay-sandstone. |
| | limestone slabs. | | |

RUARANGI PA

N 20/41

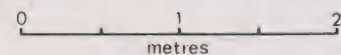
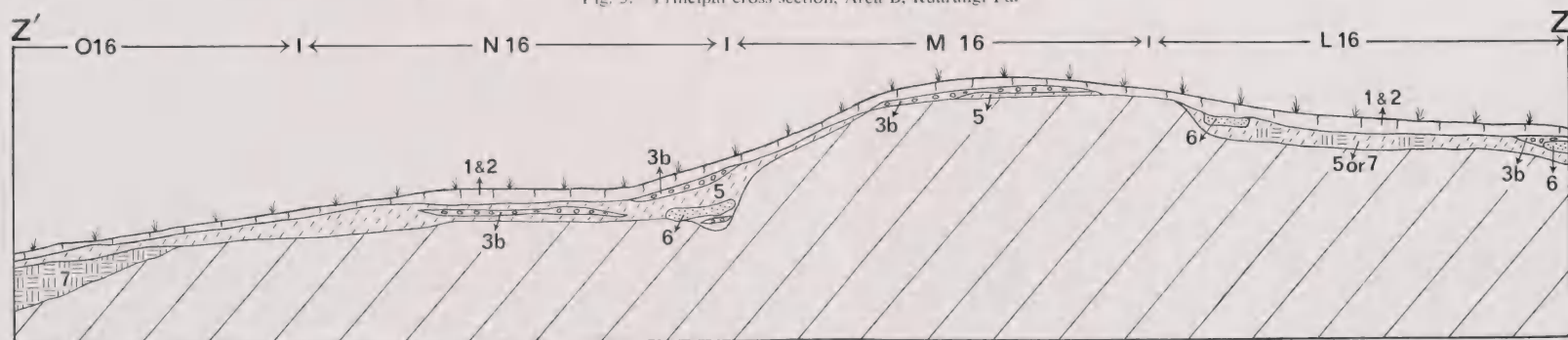
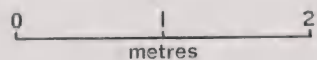
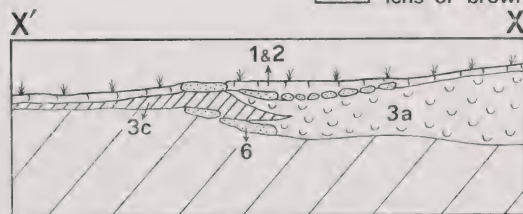


Fig. 5. Principal cross-section, Area B, Ruarangi Pa.



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|--|------------------------------------|--|--|--|---|
| | turf on black humus stained soil | | lumpy clay and brown soil | | firepit or oven with ash |
| | broken and fragmented shell midden | | brown earth with clay lumps & occasional shell | | limestone slab |
| | lens of whole shell | | brown clay fill | | clay-sandstone bedrock with possible soil horizon |
| | lens of brown clay | | | | |



RUARANGI PA

N 20/41

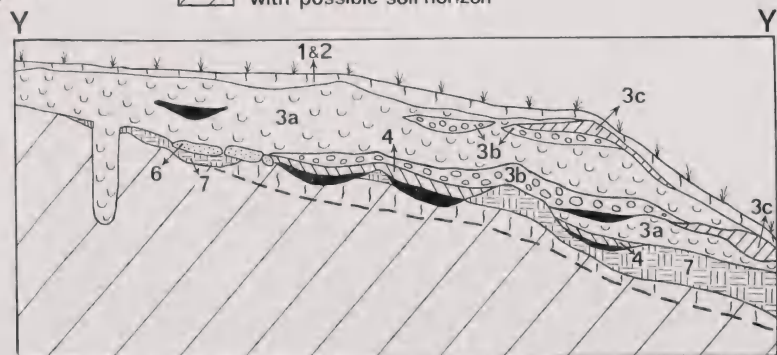


Fig. 9. Principal cross-sections, Area C, Ruarangi Pa.

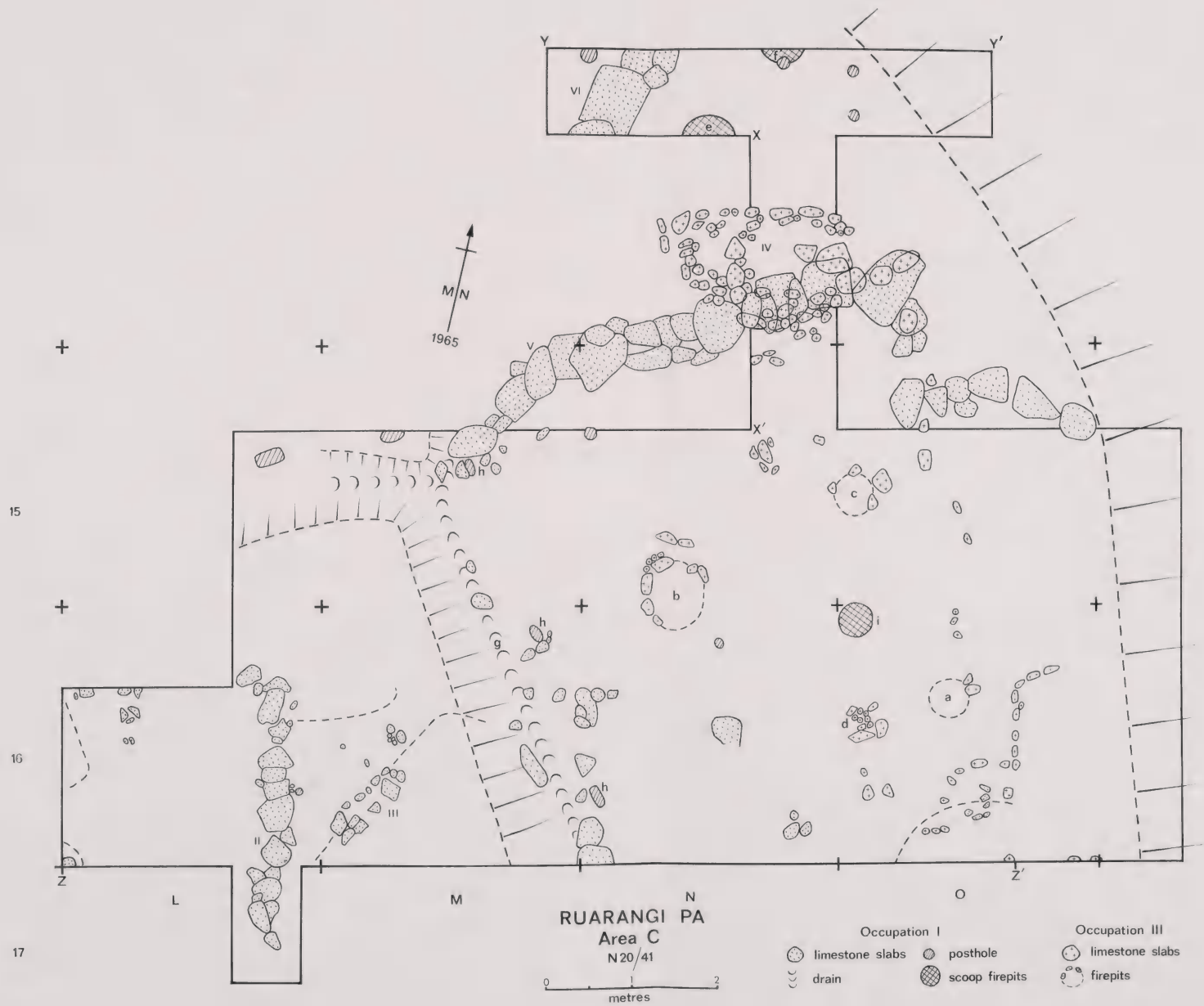


Fig. 8. Plan of Area C, Ruarangi Pa.

of stake holes in a pattern or line is not a necessary prerequisite to the identification of small residential huts, although without additional features such as were found on this site, the identification of these house floors and living areas must often be difficult or impossible.

The use of lineal limestone pavings on this site appears at present to be an isolated occurrence, not documented for other pa sites in New Zealand. Wilkes and Scarlett (1967, pp. 196-198) encountered much broader and more rectangular types of pavement at the Heaphy River Moa-hunter site which they interpreted as workshop areas, the stone slabs being laid to prevent the areas from becoming too muddy. They noted that similar pavements 15 ft (c.4.6 m) square were recorded at the Moa-hunter site at the Waitaki River mouth *in addition* to the more usual hut sites. Lineal alignments of slabs to cover drains in two pits of a pa on Great Mercury Island were found by Golson (1955, p. 351) and a similar occurrence has been described for Hamlins Hill south of Auckland (Davidson 1970, p. 110). Some of the slabs in Area B and more in Area C cover drains, but the majority on this site appear to be intended as a tidy means of providing mud free areas for outside activities and movement around the pa and in this sense are more similar to those recorded for the South Island Moa-hunter sites. None, of course, are here associated with pits. One could imagine, however, that on other pa sites organic materials were employed instead, but only in such exceptional circumstances as swamp pa would they be preserved.

That the "clay floor" people of Occupation II and the "midden people" of Occupation III were one and the same is a common-sense view, although archaeologically there is nothing to demonstrate it conclusively. However, the differences between the features which characterise each occupation are largely those reflecting differences in the use of a particular area for one of several types of activity; such a shift as has frequently been encountered with excavations of pa. There is some doubt of the extent to which the earlier of the two clay floors associated with Occupation II was ever used for habitation, at least in the area exposed by excavation, but it is most likely to have been a living area. Both floors are overlain by midden, which in the case of the upper floor (layer 6) is fairly extensive, and it may be that in both instances all that happened was that localities for a specific activity shifted, and what was formerly a residential area was transformed into a cooking and kitchen area. It is also likely that midden material was deliberately and evenly laid over the earlier floor to give a better drainage for the later inhabitants. In addition, the midden, either intentionally or unintentionally, served as a fill which raised the ground level behind the clay and boulder wall on the north side of the terrace as well as that against the low terrace scarp on the south side.

In the midden belonging to Occupation III, in contrast to the earlier midden levels, ovens with their cooking stones, or *haangi*, were found incorporated within the layer. This is interesting, as one would imagine that heat retention in a layer of this composition would be inferior to that in the more usual clay or earth. From the evidence of the heap of oven stones that lay on the bank, it also appears that oven stones were often re-used, though the large quantity contained in the layer suggest that some were scattered or lost after each use.

A possible explanation for the addition of the boulders to the clay bank next to the steep scarp leading to Area C could be that as the midden mounted higher and began to spill down the scarp slope, the boulders were added to hold it

in place. The boulder wall would then be for housekeeping as well as, or instead of, for defence. The source for the material could easily have been the *tíhi*, which was apparently levelled at some relatively late stage in the occupation sequence so that no features of any earlier occupation remained. This also fits with the fact that the limestone slabs, presumably from an earlier pavement in this area, had been carefully collected and laid aside, but not then re-used.

Flake tools were concentrated in the layers associated with Occupation IV, and other tools were uncommon at all levels. Only occasionally was an entire adze of the 2B type "lost" in the midden debris, the other specimens from the midden all being broken fragments that had been discarded.

The final occupation in Area B exhibits few traces of former structures, or other signs of major building activity. Fair numbers of chert flakes, and a few obsidian flakes, both absent from earlier layers, were encountered, some in concentrated clusters, and a few stake holes, which were hard to identify in this layer, were recorded. The sudden and late appearance of chert flakes in the sequence, gives a probable correlation with the Area A occupation.

AREA C

In Area C two rows of squares, M, N, and O of columns 15 and 16, were initially excavated, exposing a number of features similar to those encountered in Area B. Extensions to the excavation were made some months later in order to verify particular points. In general, as with Area B, the aim was to determine the uses to which this largest area of flat ground on the pa had been put, and in particular to determine the existence and type of wooden defensive devices, if any, placed along the outer edge of the terrace scarp. Where paving was encountered its extent was followed outside the area of the main excavation.

Stratigraphy

The last Occupation, III, was here represented, as in the other two areas, by a turf zone, *layer 1*, formed on a black soil, *layer 2*, containing a high proportion of humus. Several features were associated with layer 2, (in contrast to Areas A and B), including a pavement (Fig. 8—IV), composed of small slabs in limestone, and several well defined fireplaces (Fig. 8—a,b,c,d), along with the usual flakes of chert and obsidian.

Occupation II consisted of layers 3, 4 and 5.

Layer 3 was composed of a number of minor lenses and beds. The main portion of layer 3 was a midden build-up composed of shell and ash, concentrated for the most part on the northeast end of the site, where thick deposits of it were encountered in the trench extensions. However, lenses of almost pure whole shell and other lenses of lumpy clay occurred both within and at the base of the main midden build-up. In addition, shallow ash-filled hearths occurred at a number of points in it (Fig. 9). Finally, similar shallow lenses of broken shell and earth occurred under layer 2, and on top of other layers at scattered points over the rest of the excavation area. All of these were probably a part of the layer 3 complex.

In the section at the north end of Area C (Fig. 9—Y-Y') the main midden build-up of broken shell fragments, ash, and charcoal is easily identified. Within

the layer were several pockets of pure shell (Fig. 9—3b), one lens of which was fairly extensive and, except along the very edge of the scarp, lay at the base of the main midden build-up. At two points lumpy clay fills were added (Fig. 9—3c) along the edge of the terrace scarp to hold the midden in place. The first time was near the beginning of the dumping process, and the second towards the end. Another clay bed of material of very similar composition was found over pavement V, where it appeared to have been deposited after the midden build-up began, but well before it ended, so that it inter-fingered with that deposit in the middle of the build-up (Fig. 9—X-X'). Its function appears to have been as a retaining wall which held the midden from spilling out into the area to the south. In the section along the southern side of the excavated area, typical lenses of shell can again be seen (Fig. 9—Z-Z') lying just under layer 2 and on top of or within layer 5 (layer 5 in this area was made more complex by the likelihood of similar or identical fill eroding from Area B). These shell lenses can also be assigned with some certainty to layer 3.

Layer 4 was a very localised deposit of lumpy clay and brown soil found along the northeast edge of the terrace scarp, where its function seems to have been to cover over a number of hearths and even out the ground surface in that area (Fig. 9—Y-Y'). Its position suggests that it was either material eroded from the terrace flat behind, or, more likely, material dug away in levelling some part of that area, and redeposited on the irregular slope.

Layer 5 was a more widespread deposit of brown earth with clay lumps and some shell encountered in squares M 15, N 15 and 16, and O 16 and 15. It overlay pavement V higher up the slope in square M 15, while further down the slope it lay under the tip of the clay lens, 3c, which in turn formed the retaining wall that kept the main midden of layer 3 to the northeast of this same pavement. As clay lens 3c overlay pavement V and underlay pavement IV of layer 2 at this point (Fig. 9—X-X'), the stratigraphic position of layer 5 seems fairly certain to have been earlier than the layer 1, 2, 3 complex, but later than pavement V and the drains of Occupation I. This is supported by the fact that a similar brown earth with clay lumps and some broken shell was also encountered under layers 1 and 2, or scattered lenses of layer 3 midden, in the section along the southern side of the excavated area (Fig. 9—Z-Z'). Again this layer overlay a limestone slab and the fill of the drain along the base of the scarp in square N 16, a drain which at its other end ran under pavement V. Thus layer 5 must represent the accumulation of debris in this area at a time slightly earlier than the dumping of the main midden build-up at the northeast end of the site.

Pavements V and VI, and the drains at the base of the scarp in row M can all be shown to be contemporary. The lineal limestone pavements belonging to this period have all been assigned to layer 6. However, the pavements II and III (Fig. 8), on the slope above the scarp which divided the excavated area into a lower and upper flat, are not so easily placed, because no stratigraphic links could be established to a deposit found below these two pavements in squares L and M 16 (Fig. 9—Z-Z'). One could argue that all the lineal limestone pavements were contemporary, in which case the underlying deposit was, like those elsewhere, a part of the layer 7 complex. This conclusion can be justified, as the layer 5/7 deposit lay at the base of the Area B scarp, and the overflow of material from the higher area could well have locally changed the layer 7 deposit. However, the composition of the deposit as it existed at the time of excavation, was a brown

earth and shell fill more similar to layer 5, while a lens of broken shell midden probably assignable to layer 3 abutted against pavement II. Thus a case can be made that these pavements were of later date than the others and reflected an occupation more or less contemporary with the main build-up of midden layer 3, to the northeast. If not they belong to Occupation I.

Occupation I consisted of layers 6 and 7.

Layer 6 included all the scattered limestone slabs, lineal pavements V and VI, and the drains associated with them. It may also have included pavements II and III, and the drain associated with them, if these features, because of their uniformity in construction and position in the stratigraphic sequence are considered contemporary. The features of layer 6 either rested directly on the natural soil formed from decomposed bedrock, *layer 8*, or lay on *layer 7*, a brown clay fill encountered all along the outer scarp of the terrace edge and in discontinuous patches in other places. This fill probably derived from the decomposed soil on top of the bedrock which was removed in levelling the lower flat by cutting the scarp and digging the drains which divided it into areas. In the trench at the northern end of Area C, a remnant of this soil horizon remained in position under layers 4 or 7.

Layers 4 to 7 could easily be considered as very nearly contemporary, i.e. all having to do with a series of events involved in the initial levelling and transformation of Area C into a place suitable for habitation (layers 6 and 7) which was then used and modified (layers 4 and 5).

Features

Occupation III features included four round or oval hearths outlined by limestone blocks (Fig. 8 — a,b,c,d), and a broad irregularly shaped "floor" made from small pieces of limestone (Fig. 8, pavement IV). The chert and obsidian flakes were concentrated around the hearths and also over the paving. This broad paving was similar to those at the Heaphy River site in the South Island mentioned above, and the concentration of flakes on its surface also parallels the situation encountered there; a similar concentration of flakes was encountered on the unpaved house floor at Motutapu (Leahy 1970). Two adzes of Duff type 2B were found on the southern part of the paving, where the greatest concentration of flakes also occurred. A careful search gave no indication of post or stake holes in association (again similar to the Heaphy River site), but the loose nature of the midden on which the paving lay may mean that any stake holes which had been there were no longer able to be identified. The interpretation of the paving as a workshop area, however, seems assured and its designation as a house floor very likely. The adjacent area with its hearths, flakes, but no obvious post or stake holes (again they may be lacking because of difficulties in identification) is best interpreted as a living area.

Occupation II may or may not have included pavements II and III. It is convenient, however to describe them here. Pavement III, which was in very poor condition, lay almost on the surface and formed a line roughly dividing the thin soil deposits over the scarp from the deeper earth and midden deposits to the west. Pavement II was of lineal form and consisted of a line of large stones laid over a shallow drain. The midden build-up associated with this occupation contained in it several hearths, but no ovens as in Area B. The use of clay lenses to hold the midden in place has already been discussed.

Occupation I was associated with a number of lineal pavements, a system of drains, and several hearths. Thus lineal pavements II and III were probably associated with this occupation and pavements V and VI certainly were. As well, there was a scarp approximately 50 cm high running north-south through the main excavated area, at the base of which ran a shallow drain (Fig. 8 — g). Parallel to the drain and base of the scarp and set out from it some 50 cm was a series of three postholes, of elongated oval shape (Fig. 8 — h) all about 20 cm deep and separated by intervals of two metres or more. They were probably the main supports for some kind of fence which divided the lower area from the one behind. The drain at the base of the scarp was joined by a deeper channel which cut through the scarp to the higher area behind. Down the slope it joined the drain which then disappeared under the large slabs of pavement V until it made its way, after an abrupt turn to the south and then east again, to the outer terrace scarp. The scoop hearths associated with this occupation consisted of one in the centre of the terrace flat (Fig. 8 — i) and two at the northern end of the excavated area (Fig. 8 — e,f). Only one posthole was identified on the main terrace flat and another on the upper terrace. Although several deep postholes were encountered at the northern end of the site, insufficient area was exposed there to indicate the nature of the structure they represented. What is certain is that no extensive line of palisade posts lay along the outer edge of the terrace scarp and it appears that the perimeter defences for this area of the pa were minimal. A 2B adze was found next to one of the stones of pavement V, but there were no other finished portable artifacts.

AREA D

To the north of the site, below the main outer scarp, a slight hollow ran across the ridge at the point of the most easy natural means of access to the site. It was thought that this hollow might represent an infilled ditch. A test trench showed, however, that the dip was a feature which resulted from a build-up of clay to the north on what appeared to have been an artificially flattened ridge top. Once this was determined, the area was not further investigated. Area D provided additional evidence that the low outer scarp was not supplemented by other defensive features.

RELATIONSHIPS BETWEEN EXCAVATED AREAS

The probable relationships between the occupations described above for each of the separate areas may be set out as follows:

	Area A	Area B	Area C
III	Occupation I	Occupation IV	Occupation III
II	Occupation III	Occupation II
I	Occupation II	Occupation I
?	Occupation I

The only traces of the earliest use of the site were a few features in Area B that were stratigraphically earlier than the first major occupation of the site. It was at the time of the initial major occupation that the site took on the main outlines of its final shape, all the principal levelling, definition of areas, and building up of

scarps being done at that time. As well, most, if not all the lineal pavements were constructed at this time, often in association with a simple system of drains around the major living areas. That this major phase of construction was the work of a single group of people can hardly be doubted; that the major part of the midden build up which followed in Areas B and C was also the work of the same people seems likely. But this would require excavation of a larger area before it could be said with conviction. Thus separate occupation numbers have been retained, although they may only reflect different stages in the same occupation.

The final occupation, with its greater quantities of flakes often occurring in localised concentrations, was encountered over the whole of the excavated area. It must also have been the work of one people, who seem, however, to have been slightly different from their predecessors, as the type of house floor and hearth they employed were both different. Thus while the midden build-up by this time may have been sufficient that drains and lineal pavements were no longer necessary, a broad house pavement and round hearths outlined in stone were employed and clay house floors and scoop hearths, which would still have been quite functional, were not.

No European artifacts were found on the site. On the other hand, nothing diagnostic of the Archaic culture complex was discovered, so this site, along with so many others, must presumably belong in the long period in between. Traditional evidence is detailed in a separate paper (see Oppenheim, this volume). C14 dates are not available.

MIDDEN

Samples of the midden were taken from layer 3 in Area C and from layers 3, 4 and 5 in Area B (see Table 1). Of these, only sample 5 exhibited any marked difference, and this appears to be rather in the small size of the pieces of shell,

Table 1. Composition of midden samples by weight.

	SAMPLE 1 Area C Sq. M16 layer 3	SAMPLE 2 Area B Sq. L20-21 layer 3 top 6 ^{**}	SAMPLE 3 Area B Sq. L20-21 layer 3 bottom 6 ^{**}	SAMPLE 4 Area B Sq. M21 layer 5	SAMPLE 5 Area B Sq. L20 layer 4
Total weight	73oz (2069g) %	74oz (2098g) %	94oz (2665g) %	100oz (2835g) %	43oz (1219g) %
<i>Chione stutchburyi</i>	34.76	48.45	42.1	46.24	10.22
<i>Amphidesma australe</i>	3.09	2.61	6.69	x	—
<i>Amphibola crenata</i>	0.27	8.08	4.46	16.82	—
<i>Leptomya retiara</i>	—	—	x	—	—
<i>Zeacumantus lutulentus</i>	—	x	x	—	—
<i>Cominella</i> sp.	—	x	—	—	—
<i>Zethalia zelandica</i>	—	x	—	—	—
<i>Pecten novaezelandiae</i>	—	x	—	—	—
Residue	61.98	40.39	44.52	36.94	89.78

x present in small quantity

* (15.24cm)

only about 10% of which were readily identifiable. The samples confirm the initial impression of the high proportion of cockles (*Chione stutchburyi*), with smaller amounts of pipi (*Amphidesma australe*) and mudsnails (*Amphibola crenata*). Thus this midden is typical of many in the North Island found in association with pa and as beach and dry land middens separated from such sites.

ADZES

Six adzes, plus a few fragments of polished stone, probably chips from adzes, were recovered. All the adzes were of one type, 2B in the Duff classification. Two adzes were broken and the blade end only recovered. One other adze was broken at the blade end, although sufficient remained for its measurements to be taken. Measurements of width and breadth were taken half way along the length of the adze in the absence of any true shoulder (after Green and Purcell 1961) and the results recorded in Table 2. As noted above, these adzes were found in all three of the main occupations. They are made from a variety of local stones, the most remarkable being one made from a type of hard sandstone. One specimen, of which only the blade end was recovered, has an obliquely slanting cutting edge, which if viewed in cross-section would appear to run from the front corner on one side to the back on the other, instead of lying parallel to the back and front surfaces.

Table 2. Description of adzes

CONTEXT	cross-section	length (cm)	blade		thickness (cm)	REMARKS
			width (cm)	width (cm)		
Paving IV Area C Occupation III	quadrangular	6.6	1.6	3.9	2.0	no butt modification
Paving IV Area C Occupation III	quadrangular	11.3	3.1	7.2	3.1	rough butt
Paving V Area C Occupation I	quadrangular	12.0	—	5.1	2.5	no butt modification, no defined blade, made of sandstone
Spoil heap, Area B Occupation III (?)	quadrangular	—	—	7.8	4.2	blade only oblique edge
Area B sq L21 layer 3 Occupation III	quadrangular	—	3.1	5.6	2.7	blade only
Area B sq L21 layer 3 Occupation III	quadrangular	9.3	3.0	5.0	2.7	roughened at butt

OTHER ARTIFACTS

A fragment of worked paua (*Haliotis iris*) was found in midden layer 3 of Area B. It is possible that it had been part of a composite fish lure.

Flakes of chert were common in all areas during the final occupation, but uncommon in earlier ones (Table 3). In Area A the flakes were mainly small and were concentrated almost entirely in and around the hearth. There were six small cores from this area and over 15% of the flakes have small notches,

Table 3. Distribution of chert and obsidian.

		CHERT		OBSIDIAN	
		total	with use or wear	total	with use or wear
Area A:	Occupation I	232	34	5	1
Area B:	Occupation IV	16	—	3	1
	Occupation III	6	—	—	—
	Occupation II	1	—	—	—
Area C:	Occupation III	156	5	2	1
	Occupation II	12	1	—	—

possibly use marks, on one or more edges. Far fewer flakes were found in Area B, where they were concentrated in two areas. None showed use marks. In Area C the flakes were concentrated around the hearths and stone floor of the latest occupation. A few also occurred in the midden under pavement IV; it is likely they had worked down from the floor itself. The flakes from Area C appeared larger than those from other areas and very few showed signs of use.

Obsidian flakes were rare and were confined to the final occupation.

SUMMARY AND DISCUSSION

The site described in this excavation report was a small ridge-peak pa in the Whangarei area, which except for its smaller size is quite typical of many in this part of Northland. The only field evidence of structural features on the site was a number of well defined terraces. These were separated into three areas: Area A, a *tahi*; Area B, an inner terrace with high scarp; and Area C, a lower terrace with lesser scarps. Each area was investigated. Pits were not found on the site, although pits were present just below the pa and are known from the general area.

Excavation showed that palisading was probably used as supplementary defence for the central area of the site (Area B) during the early period of occupation, but was then replaced by artificially built-up high steep scarps without surmounting palisade. Ditches, or ditch and bank earthworks were at no point employed for defence. Palisading marking internal divisions in Area C was in evidence, but there was no sign of such palisading around the upper perimeter of the outer terrace scarp. Thus supplementary defensive devices were probably always minimal.

Two types of house floor were discovered. The earlier consisted of clay floors, often over a layer of shell with the associated midden just outside the "front door" and divided from the house by a line of limestone slabs. Hearths were simple, fires being lit on the clay floor or in scoop depressions, and were not outlined in stone. Stakeholes for the house structures were small and irregular. A network of drains around the living areas served to remove the water from the site.

The later house floor was of small limestone slabs which lay over the earlier midden. Hearths associated with this occupation were oval and outlined with

limestone slabs and blocks. Flakes of chert were associated with both the hearths and the floor in contrast to the earlier occupation levels, although this may be a fortuitous occurrence. Both types of house floor postdate the build-up of the scarp and the obsolescence of the palisade.

Midden samples from the different layers and occupations showed no significant variation in composition, all reflecting exploitation of the local mud flat and beach environment of the nearby harbour. It is possible that the midden, if any, belonging to the last occupation was not excavated.

While the extensive use of chert and some obsidian flakes is well attested only for the last period of occupation, adzes of the 2B type appear to have been in use through almost the entire sequence.

The relationship between the use of the pa as a place of occupation and the use of the surrounding area as a burial ground is not known. The *tapu* or sacredness of the area as it now exists could well be an extension of an earlier more restricted *tapu*. One could imagine, for example, that the big cave, Ruarangi, was used for burial when the pa was occupied, but because of its character and size remained in use after the pa was abandoned, at which point the wider area also was included as part of the burial ground. This, however, is pure conjecture. Oppenheim (this volume) records the sequence of events as far as it can be inferred from tradition.

The identification of "house floors" on the site is only one instance of their discovery and identification after extended discussion in the mid 1960s of their hypothetical existence and probable form. It constitutes, however, an important demonstration of their existence on small terraced ridge-peak type of pa.

The evidence from Ruarangi pa also suggests a sequence from palisade to artificially steepened scarp defence, and a separate sequence from clay-shell layer house floors with unlined hearths to entire limestone house floors with adjacent round hearths outlined with slabs of stone. How far either sequence is meaningful for other pa in the Whangarei area, or in other areas, can only be determined by future research. It is a continuing matter of regret to me, that neither I nor any other person was able to continue with the excavation of this pa.

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REFERENCES

- DAVIDSON, Janet M.
1970 Salvage Excavations at Hamlins Hill, N42/137, Auckland, New Zealand. *Rec. Auckland Inst. Mus.* 7: 105-122.
- GOLSON, J.
1955 New Zealand Archaeological Association. *J. Polynes. Soc.* 64 (3): 349-352.
- GREEN, R. C. and D. W. PURCELL
1961 The relationship of length, width and thickness in Central Polynesian adzes. *J. Polynes. Soc.* 70 (4): 451-465.

GROUBE, L. M.

1965 *Settlement Patterns in New Zealand Prehistory*. University of Otago Anthropology Department occasional papers in Archaeology 1. ca. 100 pp. (paging varies).

1966 Rescue Excavations in the Bay of Islands. *N.Z. Arch. Assoc. Newsletter* 9 (3): 108-114.

KERMODE, L. M.

1965 Speleology. In OPPENHEIM, R. S. (Ed.) Report on the Ruarangi Block, pp. 10-11. Anthropology Department, University of Auckland (cyclostyled), 14 pp.

KENNEDY, Jean

1969 *Settlement in the South-east Bay of Islands, 1772*. Anthropology Department, University of Otago, Studies in Prehistoric Anthropology, vol. III. 234, x pp.

LEAHY, Anne

1970 Excavations at Site N38/30, Motutapu Island, New Zealand. *Rec. Auckland Inst. Mus.* 7: 61-82.

MANING, F. E.

1863 *Old New Zealand, a tale of the good old times, by a Pakeha Maori*. Robert J. Creighton and Alfred Scales, Auckland. XIV, 239 pp.

SHAWCROSS, Wilfred

1968 The Ngaroto Site. *N.Z. Arch. Assoc. Newsletter* 11 (1): 2-29.

VAYDA, A. P.

1960 *Maori Warfare*. Polynesian Society Maori Monographs, No. 2. Polynesian Society, Wellington.

WILKES, O. R. and R. J. SCARLETT

1967 Excavation of a Moa-hunter site at the mouth of the Heaphy River. *Rec. Canterbury Mus.* 8 (3): 181-212.